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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	**CC Docket No. 95-116**
Telephone Number Portability	)	**RM 8535**

Reply Comments of U.S. Intelco Networks, Inc.

U.S. Intelco Networks, Inc. ("U.S. Intelco"), by counsel, hereby files these Reply Comments in response to the July 13, 1995, Notice of Proposed Rulemaking issued by the Federal Communications Commission ("Commission") in the above-captioned proceeding.[1] U.S. Intelco filed comments in this proceeding describing its commitment to the development and provision of an advanced Local Area Number Portability ("LANP") functionality aimed at assuring an economically and administratively viable method of providing local number portability through the interconnected, nationwide switched network.[2]

As indicated in its comments, U.S. Intelco has been working closely with other members of the telecommunications industry in establishing LANP in a manner that accommodates concerns for number

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[1] See In the Matter of Telephone Number Portability, Notice of Proposed Rulemaking, CC Docket No. 95-116, RM 8535, FCC 95-284, released July 13, 1995 ("NPRM"). Comments on the NPRM were due on September 12, 1995, with reply comments due October 12, 1995.

[2] See generally Comments of U.S. Intelco Networks, Inc., CC Docket No. 95-116, filed September 12, 1995 ("U.S. Intelco Comments").

exhaustion, prudent network deployment based on customer demand, and administrative ease. The Seattle Local Area Number Portability Trial ("Seattle Trial") has developed a regionalized "Island" solution to local number portability that U.S. Intelco believes is the most promising approach to the development of nationwide local number portability.[3]

Review of the record in this proceeding, however, reveals that some parties have raised concerns with respect to LANP that, in U.S. Intelco's view, are without basis.[4] In support of this position, U.S. Intelco attaches to these reply comments a technical statement ("Technical Statement") which addresses these concerns.[5] This Technical Statement clarifies the record by demonstrating the public interest benefits associated with the adoption of LANP, when demand for such network functionality is present.

For the reasons stated in the Seattle Interim Report, the U.S Intelco Comments, and these Reply Comments, U.S. Intelco submits that the Seattle Trial's regionalized "Island" approach to LANP

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[3] A comprehensive description of the Seattle Trial can be found within the Interim Report filed by certain of the Seattle Trial participants in this proceeding. See Interim Status Report of the Seattle Local Area Number Portability Trial, CC Docket No. 95-116, filed September 12, 1995 ("Seattle Interim Report").

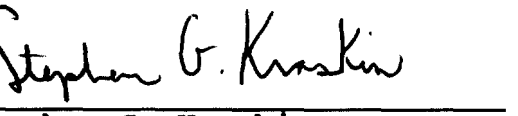
[4] See, e.g., Comments of AT&T Corp., CC Docket No. 95-116, filed September 12, 1995, at 26. These Reply Comments also address similar comment filed by other parties.

[5] See Attachment A. This Technical Statement was prepared by U.S. Intelco's technical staff addressing number portability issues.

remains the most promising solution for the natural migration to a nationwide local number portability environment.

Respectfully submitted,

U.S. Intelco Networks, Inc.

By: 

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Dated: October 12, 1995

TECHNICAL STATEMENT OF U.S. INTELCO NETWORKS, INC. REGARDING NUMBER PORTABILITY [1]

SUMMARY

U.S. Intelco Networks, Inc. (U.S. Intelco) has applied its database administration experience to the development and provision of an advanced Local Area Number Portability (LANP) functionality aimed at ensuring an economically and administratively viable method of providing local number portability (LNP) through the interconnected, nationwide switched network. U.S. Intelco's experience in the Seattle and upcoming Rochester trials, as well as participation in the various state and national forums dealing with portability, has lead to the development of an approach to LNP (the LANP approach) which offers significant advantages when demand for the local number portability function is present.[2]

U.S. Intelco's objective in supporting LNP is to provide database management support where demand-based deployment of LNP is required. Other approaches to LNP that have been proposed affect different industry segments in a non-uniform way, and will not

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[1] This Technical Statement was prepared by U.S. Intelco Networks, Inc.'s technical staff addressing number portability issues.

[2] The advantages of LANP include: strict competitive neutrality; conservation of numbering resources; ease of deployment; suitability for both interim and permanent LNP; preservation of advanced services; maximization of implementation flexibility and network technology diversity; and integration of diverse end-office functionality (e.g. single and split number addressing) requested by the industry.

result in a competitively neutral solution. For this reason, U.S. Intelco advocates consideration of its LANP approach. U.S. Intelco is unbiased with regard to the ultimate implementation of LNP. Moreover, U.S. Intelco is fully committed to supporting the industry regardless of what approach or transition plan is implemented so long as that approach calls for demand-based deployment of local number portability in an economically and administratively feasible manner, and embraces competitive neutrality, direct and easy transition to long-term LNP, and service provider autonomy for implementation decisions.

The negative comments of AT&T[3] addressing the LANP approach to LNP proposed by U.S. Intelco and Stratus Computer are simply incorrect. The LANP approach, since its last enhancement in July is, in fact, a superset of AT&T's LRN approach. Within a common call signaling and addressing specification, LANP enables individual service providers to elect the addressing scheme that best suits individual business and technical requirements independent of the election made by any other service provider. Both split (or so-called dual) numbering and single number addressing schemes are naturally supported within a single architecture. Service providers, such as AT&T, who prefer to utilize single number addressing schemes (e.g., AT&T's LRN) may do

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[3] *See* Comments of AT&T Corp., CC Docket No. 95-116, filed September 12, 1995.

so without necessarily imposing that election and its consequences on other interconnecting carriers and service providers.

LANP provides an ideal transition path for the implementation of true LNP that establishes a single common call addressing and signaling architecture from the outset. Such an implementation plan enables individual service providers to address implementation issues internally without affecting other participating service providers. This eliminates the significant costs and dislocations resulting from a change-out of an interim LNP implementation to a long-term implementation, such as would result from a CPC-to-LRN transition, as has been proposed.

The LANP approach was the first to address the importance of conserving scarce numbering resources and propose an implementation that in fact extends the lifecycle of the existing numbering resource. LANP maintains complete support for advanced services and was the first to propose specific implementation capabilities to preserve operator system functionality, such as Line Information Database. Further, LANP offers three mechanisms for provisioning ported customer lines into a new serving switch to minimize the costs of supporting LNP, in contrast to only one mode offered by both the LRN and CPC approaches. Since the call signaling standards are virtually identical between LANP and LRN, the specific billing issues are identical between the two approaches, and are generic to LNP.

I. LANP, being a superset of LRN, incorporates both split (so-called dual) and single number addressing schemes into a common solution, and is therefore an integration of capabilities requested by different segments of the industry.

While the LANP approach tested in Seattle utilized the so-called split number addressing scheme, the signaling facilities proposed by AT&T in its LRN approach are quite similar.[4] Consequently, AT&T's revision to LRN[5] to support the use of 10-digit LRNs paved the way to recognizing an LRN as a valid type of NNA in the LANP approach. U.S. Intelco proposed in an early August Industry Number Committee (INC) a revised LANP that incorporated this enhancement, resulting in an LANP approach that is a superset of AT&T's LRN approach. Within a common call signaling and addressing specification, LANP enables individual service providers to elect the addressing scheme that best suits individual business and technical requirements independent of the election made by any other service provider. Both split (or so-called dual) numbering and single number addressing schemes are naturally supported within

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[4] Subsequent to a database query, both LANP and LRN propose: a 10-digit routing number (NNA or LRN) be placed in the called party number (CdPN) parameter; the dialed portable number (CNA) be placed in the generic address parameter (GAP); the calling party's portable number (CNA) continue to be forwarded in the calling party number (CgPN) parameter; and a forward dip indicator be used (LRN proposes the FCI parameter; LANP proposes ANI/II as an interim transitioning to either FCI or CdPN nature of number). The only functional difference between LANP and LRN is in the processing at the terminating end office.

[5] *See* AT&T's LRN INC contribution PORT-78 & 78A.

a single architecture. Service providers, such as AT&T, who prefer to utilize single number addressing schemes (e.g. AT&T's LRN) may do so without necessarily imposing that election and its consequences on other interconnecting carriers and service providers.

The incorporation of LRN into the LANP approach required no modifications to the call addressing and signaling specifications, but only a recognition that the interpretation of an incoming call routing address (NNA or LRN) is performed by the terminating end office.

II. LANP provides an ideal transition path for the implementation of true LNP that establishes a single common call addressing and signaling architecture from the outset.

To date, LANP is the only database approach to LNP that has been tested in the Public Switched Telephone Network (PSTN), largely as a result of the ability of LANP to support LNP with existing PSTN functionality. Through its support of multiple addressing and provisioning modes, LANP may be deployed in a local area immediately when the demand for such function is present, and enables individual service providers to evolve and optimize implementation over time without adverse inter-company impact.

Conversely, the CPC approach differs in both call addressing and signaling from both LANP and LRN. With the CPC approach, there is no way simultaneously to support other addressing modes or

signaling mechanisms. Consequently, there is no graceful transition from CPC to LRN or LANP, but rather a simultaneous flash-cut, with the net effect of delaying any transition until the last service provider is LNP-capable. A service provider can not elect to use CPC without requiring all other service providers (even where no demand for the function exists) to support CPC interfaces to that carrier. With LANP, service providers may elect to use split or single number addressing, or any combination within their network, transparent to all other service providers.

III. LANP conserves and extends the lifecycle of numbering resources.

With LANP, vacant number pooling may begin immediately with the deployment of LNP. Being a superset of LRN, LANP improves number resource utilization at least as well as does LRN. Where split number addressing is used in conjunction with the eventual deployment of new switch triggers for LNP database queries,[6] full CNA and NNA number re-use may occur, which will add new CNA number

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[6] The development of new switch triggers for LNP database queries is widely recognized as an eventual requirement for the permanent implementation of LNP. AIN capability was designed to support advanced services and not as a vehicle for performing call routing database queries. While existing switch capabilities for launching database queries (such as AIN and IN) can be used for initial deployment of LNP, cost and adverse service interaction ptimizations require new triggers. The feature definition for a new LNP trigger recently offered by AT&T in support of LRN is fully compatible for use with LANP.

resources to the number pool available to a local portability region, further improving resource utilization.

The LANP approach was developed specifically to maximize number resource conservation and re-use. LANP was the first approach to recognize the need for a forward dip indicator[7] to enable number re-use, and therefore conservation. This mechanism was later adopted by AT&T in its LRN approach. However, since LRN only supports single number addressing, the LRN numbers can not be re-used since the same number can not be open and used for both purposes (line equipment number and routing) in the same switch. LANP is consistent with this restriction where single number (LRN-like) addressing is used, but where split number addressing is used, line-specific NNA values may be re-used elsewhere as CNA values therefore enabling number re-use. Both approaches are consistent in being able to support CNA number pooling, with the consequent benefits of stranded number resource recapture.

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[7] A forward dip indicator is a call signaling parameter (ANI/II in the interim, FCI long-term) which is used to indicate that an LNP database query has been performed for the call. It indicates that the CdPN parameters contains a routing number (NNA), not a dialed number (CNA), so that the two types of numbers can not be confused and to prevent redundant database queries from being launched at subsequent switches downstream in the callpath. This indicator has the net effect of creating two separate numbering plans (CNA and NNA) which can eventually be re-used as switch software is deployed that implements LNP-specialized triggers for call routing queries. Both LANP and LRN have such an indicator. This indicator was first proposed for LANP in January 1995 at INC. *See* INC PORT-48.

Within the context of the LANP approach, the concept of an NPA underlay was developed. This mechanism may be used in a local area to defer or eliminate an NPA split due to impending number exhaust. New NPA's in the NNA number space may be allocated and office codes assigned without requiring that customer's existing numbers be changed. LANP may be used to minimize adverse end-user impacts of expansion to the number plan required in both LANP and LRN approaches to provide the additional unique 6-digit office codes (NXXs) to new LEC switches that will be deployed to support local exchange competition.

IV. LANP fully preserves advanced services, operator services, and existing SS7 signaling capabilities.

Feature preservation is a fundamental requirement for any implementation of true LNP. LANP supports three different provisioning modes to enable a service provider to offer service to a ported subscriber and ensures continued operation of network services, such as CLASS, and specifically to guarantee that a ported subscriber's ANI (specifically calling party number, or CgPN) is reported as the customer's CNA number. Both LRN and CPC only define one provisioning mode (one of LANP's three modes) for serving a ported subscriber -- and both require that the ported subscriber's CNA number be opened in his serving end-office. This limitation is not an obstacle where split number addressing is used, because office codes are opened in the NNA space and does not

constrain the CNA NXXs of numbers that may be ported into the switch.

While the mechanisms for ensuring correct CgPN generation for calls from ported subscribers may differ between approaches, all other impacts to feature preservation are generic to all approaches to LNP.[8] Moreover, the LANP approach was the first to propose facilities and solutions for generic feature interaction problems.[9]

V. Billing issues are identical between LANP and LRN, since the call signaling proposals of the two are virtually identical.

Due to the signaling similarities in the LANP and LRN approach, only the terminating end office knows how to interpret the incoming NNA address (as either an LRN or split-number NNA) on a received call. The originating and all intermediate switches do not distinguish between an NNA and LRN in the CdPN parameter. Consequently, LANP and LRN calls are recorded the same, and require

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[8] These include: adverse feature interactions involving existing AIN triggers; missing AIN support for certain types of lines; and existing 6-digit TCAP message routing (6-digit GTT) is insufficient for TCAP message routing in an LNP environment.

[9] These include: 10-digit global title translation (10-d GTT) be performed in the LNP databases (SCP) to perform TCAP message routing functionality equivalent to 10-digit call routing; patches to existing switch software to modify adverse AIN trigger interactions; work-arounds (so-call trigger assists) for problems using existing AIN triggers; an IS-41 gateway functionality to accelerate wireless participation in LNP and to provide dynamic routing of landline calls to wireless subscribers; and an enhanced billing message routing capability to minimize billing system impacts generic to LNP.

the same downstream billing system functionality in order to process properly.

VI. Data administration of regional LNP databases is also common between LANP and LRN.

Both LANP and LRN approaches require the assignment and mapping of 10-digit routing numbers (NNAs or LRNs) to their corresponding CNA values. In both cases this mapping must be maintained on a number-by-number basis, since the database administrator can not themselves assign routing numbers as it can not rely on any implied relationship between NNA (LRN) and CNA values. Consequently, the regional SMS database design and operation is identical in both cases.

VII. The ability of multiple addressing modes (single and split) to co-exist and interoperate will be extensively tested in the upcoming LANP trial in Rochester, NY.

U.S. Intelco is hosting the LANP trial in Rochester, NY, slated to begin early in 1996. In this trial, both split and single number addressing modes will be supported and available for service providers to exercise. At this time, based on the preliminary decisions of the participants, both addressing modes will be employed.

CONCLUSION

We applaud the Commission for seeking industry comment and encourage the Commission to take a leadership role in this process, specifically in setting the objectives to be implemented by the

industry as stated in all of U.S. Intelco's comments. We believe that this process and those within the various states working in conjunction with the industry will arrive at a valid solution for LNP where demand is present so that the offering of LNP is provided for in an economically and technically feasible manner.

CERTIFICATE OF SERVICE

I, Nicola A. Chenosky, of Kraskin & Lesse, 2120 L Street, NW, Suite 520, Washington, DC 20037, hereby certify that a copy of the foregoing **"Reply Comments of U.S Intelco Networks, Inc."** was served on this 12th day of October 1995, by first class, U.S. mail, postage prepaid, to the following parties:

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